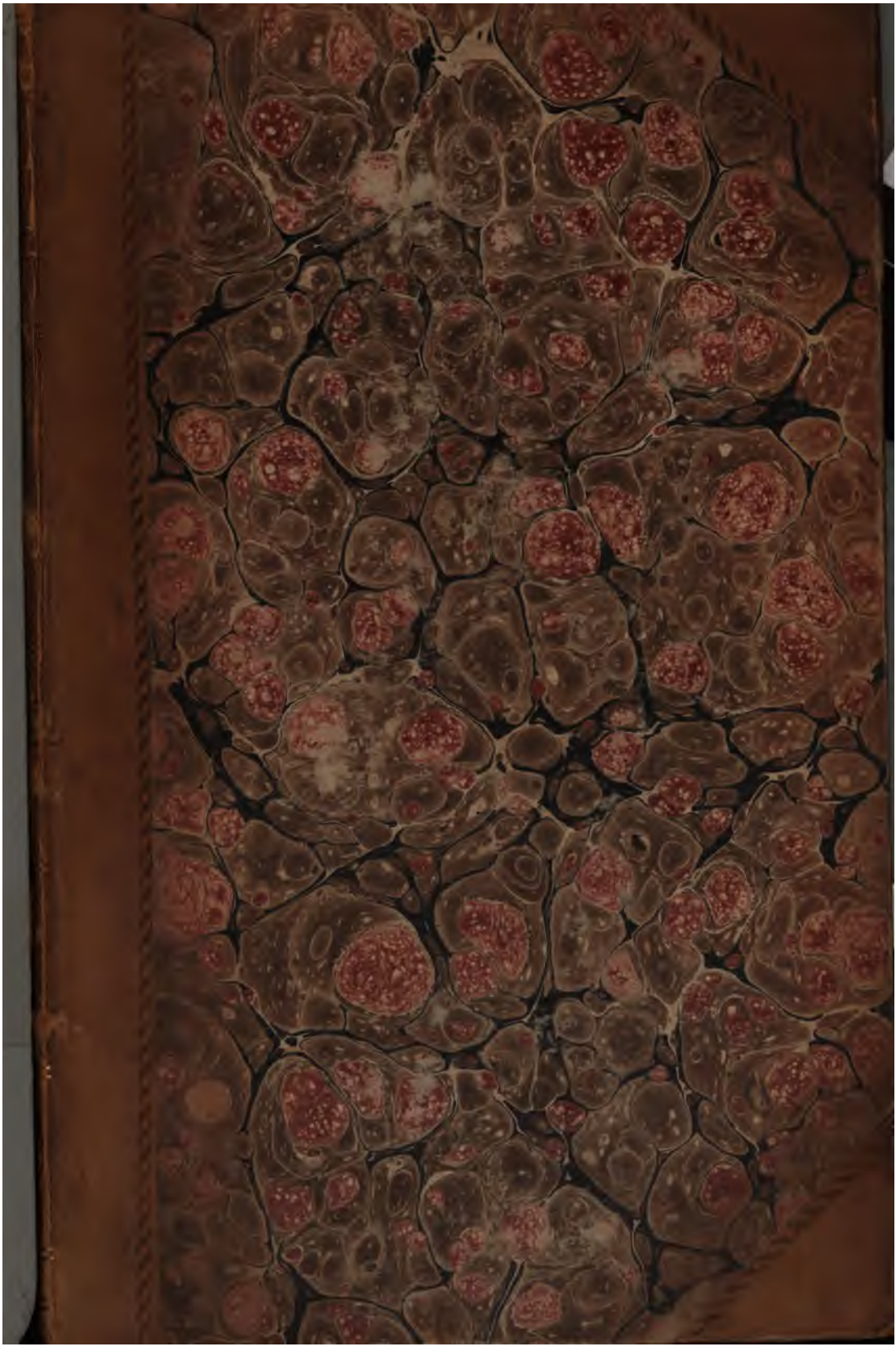

THOUGHTS

ON

MEDICAL EDUCATION.

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THOUGHTS

ON

MEDICAL EDUCATION,

AND

A PLAN FOR ITS IMPROVEMENT;

ADDRESSED TO

THE COUNCIL

OF

THE UNIVERSITY OF LONDON.

By ANTHONY TODD THOMSON, M.D. F.L.S.
&c. &c. &c.

Dictu necessaria.—*Plin.*

LONDON:
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M.DCCC.XXVI.

TO

THE COUNCIL, &c.

MY LORDS AND GENTLEMEN,

CIRCUMSTANCES connected with the progressive march of knowledge, which so conspicuously distinguishes the period in which we live, have placed within your power the opportunity of improving greatly the system of education of young men designed for the Medical Profession; and, certainly, none of the objects of the New University, over which you are appointed to preside, is of more general importance than the promotion of the study of medicine. To it, indeed, in my humble opinion, is the University to look for a large share of its prosperity, provided the system of instruction which it shall follow be settled upon a sound foundation, and embrace as its object the formation of efficient medical practitioners.

As the nature of your projected establishment, and the era of its foundation, equally exempt you

from being fettered by the chains of prejudice, and, by a weak adherence to antiquity, when it possesses no other claim to veneration than that which is derived from the rust which covers it, the public has every reason to hope, that you will be guided in adopting your plans of teaching, rather by their fitness for the objects intended to be accomplished, than by any respect for the established usages of other universities. The more venerable, indeed, these institutions are, the less likely are they to contain proper models for modern education; and in no branch of study is this so evident as in that of medicine, as the principal improvements which it can boast of have been effected within the last half century. Impressed with these truths, and anxious to promote, by any means in my power, the benefit of a profession to which I owe every thing I possess, I am emboldened to lay before you my opinions on the subject of medical education, in the hope that they may direct your attention to so important an object, and, by inducing you to obtain opinions upon it from the best informed members of the profession, you may be enabled to arrange such a course of studies for those who shall be educated for medicine in the University of London, as may equally advance the profession and benefit the public.

It is unnecessary for me to detail the ineffi-

ciency of the present mode of educating young men who are designed to practise medicine, more especially of those who are intended for general practitioners in England: much of it arises from one evil, which I deeply regret you cannot remove; but which, as it has been lately deeply felt and lamented by the liberal part of the profession, I will shortly notice:—I mean the custom of serving apprenticeships. When a parent determines to educate his son for the practice of medicine, the boy is taken from school, and, without any other preliminary education than a very slender proficiency in the Latin language, perhaps a superficial knowledge of Greek and of French, and a very imperfect acquaintance with English, is bound an apprentice to a general practitioner. This period of unnecessary servitude occupies five of the best years of his life; and I will venture to affirm, that it is generally dissipated in acquiring little more than the method of compounding medicines, which might be attained in as many months. Habits of idleness are consequently formed; the mind of the pupil is filled with confused ideas of the effects of drugs, without any knowledge of the principles which should always direct their application; and it is in the last year only of his apprenticeship, or, in numerous instances, not until it be completed, that he really begins the

study of his profession. But suppose that the student has now passed the twentieth year of his age; that he feels the necessity of commencing the actual business of life; and, consequently, looking chiefly to the rapid attainment of such a portion of information as will enable him to pass his examinations, and enter upon the practice of his profession, that he attends only to those branches of medical education which will enable him to accomplish these objects in the shortest period of time. He studies anatomy, and dissects, because he cannot advance one step without these aids; but, from his ignorance of mechanics and of chemistry, he is not prepared to understand physiology; and having no acquaintance with the philosophy of mind, he cannot trace its influence upon the corporeal functions; so that not unfrequently he becomes a mere routine practitioner, or a trader in specifics, depending for assistance, in every case of difficulty, on the opinion and skill of others. And it is well for the public, if the imperfectly educated practitioner timely demand such assistance; for, as ignorance and temerity generally go hand in hand, the threatened danger is too often either not perceived, or the disease is awkwardly grappled with, until the moment has passed in which skill and judgment might have averted the fatal result. Another disadvantage arising from

apprenticeships, is the trading feelings with which it narrows the mind of the pupil; and under which the profession has been long degraded, whilst the public has not been benefited. I am aware that by the act commonly called the Apothecaries' Act, an apprenticeship of five years is required to have been served by every candidate who presents himself for examination at Apothecaries' Hall, for a license to practice as an apothecary in England and Wales: but I also know that this regulation is deeply to be lamented; and, if sufficient evidence be adduced of its uselessness and evil tendency, a hope may be entertained that it will yet be repealed. At all events, the public ought to be instructed, that in binding youths to a general practitioner, they are not, in truth, commencing their medical education; that, in the majority of instances, the apprentice learns nothing; and that much more than "walking the hospitals" is required, at the termination of an apprenticeship, to form a skilful and efficient practitioner. It cannot, however, be denied, that some of the most distinguished men, who have adorned and advanced the medical profession, have served apprenticeships; but the talent with which they were gifted, and the industry which brought it into operation, would, under any circumstances, have elevated these individuals above their cotemporaries.

Some years since, when the Apothecaries' Act was framed, the subject of apprenticeships was fully discussed, and strong arguments were advanced against the continuance of the custom; but these were overruled, chiefly on the ground that many individuals who were intended for general practitioners could not afford to be educated in any other manner; and that as long as society consisted of different ranks, practitioners of different grades would be required. I am willing to admit that the different ranks of society demand different grades of medical men; but I cannot acquiesce in the opinion, that the lives of the labouring part of the community and of the poor are to be intrusted to the half-educated practitioner, merely because they are not able to remunerate him in the same degree as the rich, who are attended by the more fortunate of his professional brethren. In this respect, indeed, the pauper, who is forced to solicit admission into an hospital, when he is overtaken by disease, or has suffered any corporeal injury from accident, is much better attended than the industrious mechanic, whose laudable pride prevents him from entering an hospital. He is forced to employ a practitioner of inferior degree, not merely as to professional rank, but in medical education; and thus many valuable lives are lost. Now this is an evil deeply to be lamented; and although I

must allow that the constitution of society requires practitioners of medicine of various grades, yet I must contend that all should receive the same medical education. Were this the case, there would still exist apothecaries, surgeons, and physicians; for, if all practitioners were equally well educated, different grades must exist in the profession, as long as ingenuity, judgment, and the powers of intellect, are found in different degrees in the mass of mankind; independent of the advantages which some men must always enjoy over others, from fortune, family connexions, and patronage. If, therefore, medicine is to be practised by every class of practitioners scientifically as a liberal art, rather than followed as a trade in specifics, I trust no arguments are required to convince you that the years now unprofitably spent in apprenticeship may be more advantageously occupied in acquiring the principles of the science; and even should the prejudice which attaches us to old customs, and the continuance of the legal enactment referred to, maintain the system of apprenticeships, it may be hoped, that practitioners will be induced to permit their pupils to attend lectures, and to receive all the advantages which can be derived from such a system of instruction. In promoting so desirable a measure, you, as the Council of the University of London, have much in your power,

by adopting such a plan of education as will be calculated not only to benefit the public, but to elevate the profession.

There is certainly some weight in the objections which have been advanced against sending young men of fifteen years of age to the metropolis, unrestrained, to pursue their medical studies; but these objections may be overcome by the certainty, that, although apprenticeships were given up, yet, there would always be found a sufficient number of practitioners willing to receive young men into their families as pupils; and to regulate their studies rather as tutors, than to command their services as masters. It may be supposed that this system would be too expensive; but, when we consider, that from two to three and four hundred guineas are now given as fees of apprenticeship, and that all the necessary expenses of a medical education are still to be incurred after the term of servitude is completed, this argument will be found more specious than solid. I will suppose that a practitioner of medicine receives a youth into his house as a pupil, at one hundred or even one hundred and fifty pounds per annum; and that his fees at the new University and at an hospital will cost an additional fifty pounds,—the whole expenses of the medical education of the pupil, allowing that three years are required to complete it, would not exceed four

hundred and fifty, or, at the utmost, six hundred pounds. Now, on the other hand, suppose two hundred or three hundred guineas are paid as an apprentice fee, the expenses of living and of attending classes and hospitals, for even two years only, after the period of servitude,—will amount to at least three hundred pounds more;—so that the expenses in both systems are nearly the same, whilst the essential advantages of the proposed alteration are much greater than those connected with apprenticeships.

Where are assistants, a very useful body of men, to be procured, if apprenticeships be set aside? is a question which is asked by those who support the present system of educating young men intended for general practitioners. I reply, that assistants, should these still be required by the general practitioner, might be procured from among the young men brought up in the shops of chemists and druggists; and if these only were the compounders of medicines, although their number be now too small in comparison with that of general practitioners throughout England and Wales, yet, as in every thing else, the increased demand would very soon produce an adequate supply. By attending for an hour or two daily on the labours of these individuals, the medical pupils would soon acquire a sufficient knowledge of the manipulations of the laboratory,

without infringing upon the time requisite for more scientific pursuits.

But, admitting that instead of serving apprenticeships, young men were to be placed as pupils only with practitioners of medicine, it will not be difficult to shew, that a systematic plan of medical education is not likely to be pursued in the metropolis, should the present mode of teaching medicine there be continued, notwithstanding the number and the excellency of its hospitals, the schools of medicine attached to them, and the deservedly high character and celebrity of the teachers, both public and private. In the first place, a young man is generally guided in the choice of the school, or the teachers which he selects, by accidental circumstances; in the second place, as in none of these schools he is obliged to prosecute his studies according to a fixed plan, he attends either one class or another, as his inclination or the advice of some fellow-student may direct; even if his course have been arranged by a medical friend, it is very probable that too little thought and consideration have been bestowed upon the subject: and, in the third place, too short a time is occupied in the various courses of lectures, which are annually delivered in the metropolis, to permit them to be full and complete courses. Few examinations, also, take place; the pupils come

too little in contact with the teachers; and in the experimental branches of study no opportunities are afforded to the students to repeat the experiments, in order that they may fully comprehend the changes effected in them, and which determine the results. I do not mention these facts to detract from the merits of the existing teachers of medicine in the metropolis; but, in a matter of so much importance, the true state of the case should be exposed; and I put it to the honour of the teachers of the various branches of medical science in London, to say, whether courses, which, at the Scotch, Irish, and Continental Universities, require six and eight months of daily lecturing, can be delivered in thirty or forty lectures? The thing is impossible; and, consequently, we are authorised in concluding, were the fact not well known, that the best courses of medical lectures delivered in the metropolis are little more than outlines of what they ought to be. Besides, the lecturers generally cease from their labours at the very time when their instructions are likely to be most useful, when practice is enabling them to verify their theories by the test of experience. It is, therefore, a matter of the utmost importance to fix a plan of medical education in the New University, the adherence to which should be imperative; and it is with a view to forward this measure,

as I have already stated, that I now presume to address you, the Council of that projected establishment.

I will suppose that the building for the University is completed; that the lectures are about to commence; and that a young man presents himself to be admitted as a student of medicine. I must presume that, before his wish can be accomplished, the rules of the establishment will require that he be examined regarding his attainments in classical literature. To what extent these may be requisite, it is not my intention to inquire; but certainly the candidate should possess such a knowledge of the Latin and the Greek tongues as may enable him to read the ancient medical authors in the languages in which they wrote. And, besides, as medicine is a profession which elevates its followers to the rank of gentlemen, the student who is desirous of attaining eminence, should possess that portion of classical learning which every gentleman is presumed to have acquired. Mathematics is another branch of general education which every student of medicine should have studied, to a certain extent, before commencing his medical education: for, if it be no difficult task to prove that a knowledge of the principles of mechanics is essential in a complete medical education, it must be obvious, that mathematics, as a preliminary

study, cannot be dispensed with, even were no other advantage obtained from the study of that branch of science than the faculty of following a chain of close and abstract reasoning, which it bestows. The student who enters for medicine should also have a knowledge of drawing; or as much of it, at least, as will enable him to delineate, with facility and accuracy, the parts of the human body, both in the state of health and of disease. It is, indeed, astonishing, that the art of drawing is still so totally neglected in the education of medical men,—when the advantages derived from that accomplishment by a few members of the profession, who have made it an object of study, are so generally known. Besides the facility which drawing affords of rendering permanent diseased appearances of a changeable character, and of communicating ideas of them to others, much more accurate and satisfactory than could be accomplished in many pages of description in words, that delightful art confers upon its votaries almost an additional sense. He who draws the appearances which any object presents, will examine that object more attentively and accurately, and retain a more correct idea of it, than another person, equally interested in gaining a correct idea of it, can do; because the very habit of examining objects with attention, in every point of view, enables him to see parts which are overlooked

by others; and the repeated examination which is required to enable the draftsman to give a correct delineation of the object, fixes it indelibly in his memory. He attains as much accuracy of sight, as the artisan who works in very minute objects acquires of touch; the one seeing and the other feeling circumstances which are not perceptible to others, in whom these senses have been less exercised. The student who can draw obtains also a more exact notion of the relative positions of parts, and remembers them better. As a branch of preliminary education, therefore, the art of drawing should, in my opinion, be required to be known by every youth beginning his medical studies at the New University; and both in mathematics and in drawing, the examinations should not be a mere categorical inquiry, and the exhibition of drawings done at home; but the candidate for admittance should be forced to work a problem in Euclid, and to make a drawing either of a preparation of a morbid part, or of a portion of the recent subject, shut up in a room by himself. A high degree of perfection should not be expected; but the proficiency of the candidate ought to be such as should convince the examiners that he understands enough of these branches of general education, to render them usefully subservient in promoting his acquirement of those parts of the study of medicine, anatomy,

surgery and pathology, which they are calculated to assist.

It may be objected to such a preliminary examination, that, in requiring some knowledge of mathematics and of drawing, more is expected from the students than the first professors themselves will probably possess, since few medical men, even of deservedly high reputation, are acquainted with the use of the pencil: but although the truth of this remark be admitted, yet it does not weaken the argument in favour of the propriety of enforcing, in those who may henceforth commence the study of the profession, an attainment of such preliminary acquirements.

Having determined upon the kind of knowledge which every student who enters for medicine in the New University should possess, before he can be admitted, let us now attempt to arrange those studies which should occupy his attention whilst there, supposing that four sessions of six months, or three of eight months, be the period required to complete his medical education. Before proceeding, however, it is proper that the modified sense in which the word *complete* is used here should be understood; for it must not be imagined that the term alluded to is nearly adequate for the acquirement of such a degree of information as would enable any individual to practise his profession satisfactorily to himself

or beneficially to the public. On the contrary, I am of opinion, that the moment a practitioner ceases to be a student, he is no longer worthy of the confidence of the public; and that the life of a physician can only be truly useful and honourable, when it is unremittingly employed in study, in determining the truth of theoretical opinions by observation, and in proving the value of practical suggestions by the test of experience. The word complete, therefore, is here intended merely to imply that portion of elementary knowledge which a student can receive at college, and which will enable him to commence practising upon sound principles. And having said this much, I will now proceed to lay before you that plan of study, which, in my humble opinion, is calculated to lay the foundation of an efficient and satisfactory practice.

I propose to divide the course of medical studies into three stages, — preparatory, progressive, and practical. The first, or *preparatory* stage, or division, comprehends those studies which convey a knowledge of the forms of bodies and of their parts or fabric, and the most generally adopted arrangements or classifications of natural objects; viz.—

NATURAL HISTORY;
SYSTEMATIC BOTANY;
DESCRIPTIVE ANATOMY.

The second, or PROGRESSIVE, to embrace those studies that contribute to develop the laws which regulate inorganic matter, and the functions of organic bodies: —

NATURAL PHILOSOPHY;
CHEMISTRY;
PHYTOLOGY;
PHYSIOLOGY;
MORAL PHILOSOPHY.

The third, or PRACTICAL, to consist of those studies which convey a knowledge of the ultimate objects of the profession of medicine; and, consequently, teach the application of the previous studies:—

MATERIA MEDICA and PHARMACY;
PATHOLOGY and the PRACTICE of MEDICINE;
SURGERY;
OBSTETRICAL SURGERY and MEDICINE;
MEDICAL JURISPRUDENCE;
MEDICAL ETHICS.

During the period required for the studies of the second and third divisions, the student ought to be occupied, daily, for two hours at least, in the dissecting-room, under the direction of an assistant of the professor of anatomy, whose sole duty should be to guide him in his dissections, and to demonstrate the parts dissected: and, during the period of the third division, besides

attending regularly in an hospital where *clinical lectures* are delivered, no opportunity of assisting at the dissections of diseased bodies should be neglected.

Having thus sketched the general outline of the plan of studies which, I humbly submit, as the best adapted for forming an efficient medical practitioner, let us now inquire into the advantages to be derived from those branches of study which are not commonly regarded as necessary in a course of medical education, but which, nevertheless, form a part of this projected course; and discuss the manner in which the whole should be taught.

The branches of study referred to are Natural History, Natural Philosophy, Moral Philosophy, and Medical Ethics.

With regard to the first of these, *Natural History*, which, in the strict definition of the term, comprehends medicine as one of its branches, but is here employed in its limited signification, it is unnecessary to advance any arguments to prove, that, in a study such as medicine, which refers to the human frame and to the laws which regulate its functions, every information connected with general animal nature, the variety of external forms under which it is displayed, and the diversity of its internal structure, must, to say the least of it, be an important aid in un-

derstanding fully the economy of man: "rerum naturæ contemplatio quamvis non faciat medicum; aptiorem tamen medicinæ reddit, atque perfectum."* Its importance as a preliminary study to a course of medical education has, indeed, been lately acknowledged in framing the new regulations of the University of Edinburgh, which require, that every candidate for a medical degree shall have attended at least one course of Natural History.

But, independent of the advantages which have been adverted to, the study of Natural History by the medical student lays the foundation of one of the most important qualifications of the physician, — the habit of observation. The majority of mankind examine the objects of sight in so imperfect and cursory a manner, that, although they have eyes, yet they do not see; and, on this account, pass from the cradle to the grave almost without possessing one correct idea of external nature. The naturalist, on the contrary, cannot proceed one step in his inquiries without examining, closely and accurately, every object of his study, comparing appearances in one with those in another, so as to be enabled to arrange them in classes, genera, and species. On this account he is led to connect objects apparently dissimilar,

* Pliny, lib. i. in Procem.

and to disjoin others which, to the common observer, appear closely connected; but which, nevertheless, display distinctive characters. In commencing the study of medicine, therefore, with Natural History, the mind of the student is not only expanded and stored with materials, which he will find useful in every stage of his professional progress, but he is tutored to a habit of minute and accurate observation, comparison, and classification; and, as we derive our knowledge of the laws of nature from a comparison of a number of facts the truth of which has been determined by experiment or observation, so, in medical science, we are enabled to infer the existence of general facts by the same means; and thereby to acquire an accurate knowledge of the laws which regulate the animal economy. Without such a preparation, the student will commence the study even of Descriptive Anatomy under great disadvantages.

If the necessity of Natural History as a part of medical education be admitted, it will not be difficult to prove, that, in conjunction with Systematic Botany and Descriptive Anatomy, it should form the first branch of study, inasmuch as it is better adapted to the previous habits of application of a youth who has just quitted school, being addressed chiefly to the eye and the memory, without calling into action the

more complex operations of mind. The intimate connexion between Natural History and Systematic Botany will permit both these courses to be commenced at the same time; but as the study of Descriptive Anatomy should not be entered upon until some progress be made in Natural History, I would propose, that the medical student, who is in the first session of his education, should not attend the first course of anatomical lectures of that session. It may, however, be properly demanded, Who is then to attend the first course of anatomy in each session? I reply, the more advanced students; on which account, that course should have reference to Descriptive Anatomy merely, as it is required in teaching Physiology; and should consequently occupy two-thirds only of the whole session. By this arrangement, the lectures on pure Descriptive Anatomy would not commence until the month of March, by which time the student of the first session will have nearly passed through the courses of Natural History and Systematic Botany, and be disposed and qualified to enter with ardour upon the study of Anatomy, as an extension of those inquiries into the animal structure with which he has been already occupied.

Natural Philosophy, in my opinion, is so essential as a preliminary branch of medical edu-

cation, that I can scarcely conceive how Physiology can be understood without some acquaintance with it. If we wish to explain the manner in which the body is moved by the muscles, must we not have recourse to the doctrines of the lever and the pulley; to those of hydrostatics and hydraulics, to explain the circulation of the blood, and the nature of absorption; to aerostatics and pneumatics, to render more accurate and intelligible our explanation of the functions of respiration and of hearing; and to optics, to illustrate the faculty of vision? The very language, indeed, which is used in explaining the different animal functions, presupposes a knowledge of physics. Thus we speak of bones being levers, joints and fulcra, and muscles the media through which the moving power acts; we illustrate the strength of the cranium by reference to the structure of the arch: we descant on the projectile force of the heart; the impetus of the current of the blood; the resistance of the coats of the vessels; on the rotatory motion of the trunk on the head of the thigh-bone, in the progressive motion of the body; on the centre of gravity, the refraction and reflection of light, and numerous other matters in which expressions are employed, which, to a person ignorant of Natural Philosophy, will tend rather to confuse and render more obscure, than to illustrate, those functions of the human body which

they are intended to explain. It is true, that the animal frame, during life, is actuated by a vital principle, and by powers different from those which regulate inorganic matter; yet it is in part subject to the general laws of material bodies, and without a reference to these, its functions cannot be explained nor understood. For these reasons, I have placed Natural Philosophy at the head of the second or progressive division of studies; because it is necessary for comprehending many of the doctrines of Chemistry, and without it neither those of Physiology nor of Phytology can be understood. It must not be supposed, however, that I would urge the necessity of the medical student attending an entire course of Natural Philosophy — spending time, for example, in the acquirement of astronomy, and some other parts of the science: for although I admit the truth of the remark, that the whole "improves and elevates the mind, by unfolding to it the magnificence, the order, and the beauty manifested in the construction of the material world;"* yet to the medical student, whose pecuniary means, and the time which he can devote to the acquirement of his profession, are too often, unfortunately, very limited, I consider the study of Natural Philosophy essential, only as far as it renders more

* Playfair's Elements of Nat. Phil. vol. i.

comprehensible the principles of the art which he is acquiring and about to practise.

With regard to *Moral Philosophy*, at least that part of it which relates to the philosophy of mind, being regarded as a branch of medical education, there can be only one opinion. The connexion between mind and body, the influence of each upon the other, both as regards the production of diseases and the cure of them, are too obvious to have escaped the eye of the most ordinary medical observer; and the faculty of taking advantage of this reciprocal influence in the treatment of diseases, constitutes one of the highest qualifications of the physician. In that class of diseases in particular, which, from their effects upon the mind, have been termed mental, a previous knowledge of the faculties of mind is absolutely requisite; for although it may be doubted whether we can with propriety speak of a diseased state of mind, insanity, perhaps in every instance, being dependent on some morbid state of the body; yet it is undoubtedly necessary that he who undertakes the cure of insanity should be acquainted with the human mind in what is usually termed its sane state; or how can he presume to investigate those causes which affect its operations, and to trace their results? To the want of this previous knowledge, and to the neglect of the philosophy of mind as a branch of

medical education, is to be attributed the melancholy truth, that the treatment of insanity is that part of medical practice which has advanced least in modern times: and to the same cause must be assigned those unsatisfactory opinions which are delivered by medical men in courts of justice, in cases of supposed or real mental derangement; opinions which not only place those who deliver them in a point of view very different from that in which he who is anxious to be supposed a master of his profession would desire to appear, but are even not unfrequently derogatory to the profession itself. It is unnecessary to dilate upon this part of my subject: enough has been said to prove, that that part of Moral Philosophy which is connected with mind should be regarded as a branch of medical education; and if this be admitted, its study should be made imperative, as a part of the medical course to be followed in the New University. I have placed it as the last of the progressive studies, because it is the most abstruse of these, and requires the student not only to follow closely the prelections of the teacher, but to be able to abstract his own mind from himself; "and placing it before him as it were, so as to examine it with freedom, and with the impartiality of a natural historian."*

* Crichton's Inquiry into the Nature and Origin of Mental Derangement, Preface, p. x.

The last of the branches of study referred to as innovations, in the tabular view of the course which I have proposed, is that which I have termed, in the language of Dr. Percival, who is the only author that has written expressly upon the subject, "*Medical Ethics.*" It refers to the conduct of the practitioner in his professional connexion with his professional brethren and with society. Daily experience proves that brilliant talents, that the most scientific acquirements, and a perfect knowledge of his profession, have not in every instance insured to the individual possessing them the public confidence; whilst men of much less erudition, with not half the professional acquirements, and with very inferior judgments, have enjoyed an enviable degree of celebrity and public esteem. To what are these circumstances to be ascribed, if they be not connected with something in the conduct and deportment of the individual which attaches others to him, gives a favourable impression of every thing he does, and inspires confidence in his opinion? As far as the profession is concerned, the conduct of the practitioner requires to be guided by principles of candour and liberality, avoiding every thing which can in the smallest degree lower the character of those with whom he is obliged to act in concert, or whom he may have superseded in the confidence of a patient, in the treatment of any case: his manner

should be a guarantee that he feels the responsibility of his situation, that he practises his profession in earnest; and mild, affable, and conciliating, with a high sense of honour, he should endeavour to win the confidence and friendship of his patients, if he expect to prove successful in administering to their relief. To possess an ascendancy over the minds of others is of primary importance to a medical practitioner: it has a powerful influence on the success of his prescriptions, and is a striking illustration of the part which mind plays in the cure of diseases. The method of attaining such an influence, therefore, ought to be pointed out to every young man about to enter upon the practice of his profession; and, as the subject does not afford sufficient matter for more than five or six lectures, I have proposed that the delivery of these should form a part of the duty of the professor of the Practice of Medicine.

Having thus pointed out, as briefly as possible, the necessity of introducing Natural History, Natural Philosophy, Moral Philosophy, and Medical Ethics, as branches of medical education, I will now endeavour to describe in what manner each of the studies contained in the course which I have presumed to offer to your consideration should be taught.

No method of communicating scientific in-

formation arrests the attention of the student so forcibly, and consequently is so instructive, as that of lecturing. The pupil finds himself, in the lecture-room, one of a numerous body of auditors, all anxiously engaged in the same course of studies, — a circumstance alone sufficient to arouse his attention, and to convince him of the importance of the object of his pursuit. If the student be thus disposed to receive the information delivered in a crowded lecture-room with more earnestness than if he were a solitary auditor of the instructions of a private tutor, the effect on the lecturer himself must be equally beneficial. He is stimulated to greater exertion by the publicity of his situation; he cannot evade any part of his duty; and the being open to criticisms, even of his pupils, necessarily compels him to keep pace with the progressive improvements in the science which he teaches. Nothing can be more judicious, therefore, than that part of the plan of the New University which proposes to teach by lectures, in the manner of the Scotch and many of the Continental universities. But at the same time, while it must be admitted that much information may be communicated in the form of lectures, yet it cannot be denied, that no science can be properly acquired by a mere attendance upon these discourses. The best lectures can do little more than to point out the mode

of studying any science, and to give an outline of it, which must be filled up and completed in the closet of the student: and as it is of primary importance to ascertain how far this has been accomplished, the pupil should be examined at stated periods as to the extent of his acquirements. By such examinations, the capacity as well as the industry of the pupil become known to the teacher; and he discovers where his aid and advice are required, and on whom his encouragement ought to be bestowed. In the plans of instruction to be adopted in the New University, it is to be hoped, therefore, that examinations will form a very prominent feature; that the pupil and the professor will be brought into closer contact, and that the progress of the former, consequently, will be left to chance less than is the case in the colleges and universities already established.

The adoption of examinations such as are now proposed precludes the necessity of notes being taken in the lecture-room by the students, a custom disadvantageous to a pupil who has not previously some knowledge of the subject of those compositions which he thus attempts, most injudiciously, to make his own; and extremely detrimental, as recent experience has demonstrated, to the interest and the character of the professor. If a student listen attentively to the lecturer, his

mind will be sufficiently impressed with the subject to enable him either to reflect upon it afterwards and, generalising the facts, to store them in his memory, or to make notes of them in his hours of private study; but, in endeavouring to take down the words of a lecturer, his attention is distracted, and he is rendered unfit to digest properly the matter of the discourse. If notes be not, therefore, permitted to be taken, and if examinations be instituted, a proportionately greater necessity of attention is imposed upon the pupil; the idle and careless have no sinister means of getting up a smattering of the subject of an examination, by borrowing the notes of a fellow-student; but each must depend upon the knowledge which he has personally derived from his attendance on lectures, to make a respectable appearance at the examination, where his proficiency is, as it were, to be tried by a jury of his contemporaries and fellow-students. I recollect an anecdote illustrative of this remark, which occurred when I was at Edinburgh. A worthy fellow, who was a general favourite, on account of his amiable disposition, but who was fonder of angling than of study, was enrolled a member of a small society of students, which met weekly for the purpose of examinations on the subjects of the lectures of the week. At the first meeting, it was well known that Tim,

for so I may call my good-natured friend, had been engaged three days on the Esk instead of being at lecture; and yet, to the surprise of all, his replies were ready and tolerably correct. How can this be? was the general exclamation. "Aha!" said Tim, "I am up to a thing or two: I borrowed ——'s notes; and, thus, both enjoyed my sport and obtained a knowledge of the lectures." But the day of reckoning came:— poor Tim was rejected on his examinations for a degree; and, having left the university in disgrace, exchanged the lancet for the sword.

To render my ideas on the subject of examinations more clearly understood, I will now proceed to notice separately each branch of study in the order of its place in the tabular view of the course which I have offered to your notice, as far as relates to the manner in which these examinations should be conducted.

Natural History. — Besides a daily lecture on this subject by the professor, the pupils ought to be examined, at least twice a week, in the museum. They should be called upon to name the different objects which have already been treated of by the lecturer, to state the places which they occupy in the systems adopted or recommended by the professor, and to describe them in the language of the science. I have said that these examinations should be held in the

museum, because I cannot conceive the existence of lectures on Natural History without a museum; and I presume, that a portion of the fund subscribed by the proprietors of the University of London is to be appropriated for the purchase of such a collection, as shall form the nucleus of a complete repository of the objects of this science.

Systematic Botany. — This branch of science should be taught by daily lectures, examinations, and occasional herbalizings, under the guidance of the professor. If a botanic garden be not attached to the University, which however will be the case ere long, means ought to be taken to have a regular supply of recent plants to illustrate the lectures; and a large proportion of these should be medicinal plants. In the Botanical examinations, the pupil should be obliged to name the plant presented to his notice, to state its class and order in the Linnean system, and the place also which it occupies in that of Jussieu: or, if he be unacquainted with the plant, to find it out at the time, by reference to both the above-mentioned systems. Prizes should also be instituted for the best *hortus siccus* collected by the pupils during the session; and for the most accurate written descriptions of plants, exhibited for the purpose by the professor at the examinations, after the method of Linneus, and that of Jussieu or De Candolle: but these descriptions

should be written during the time of the examinations.

Descriptive Anatomy.—The examinations in this important branch of medical science should take place three times, at least, in each week, and be held over the body. The parts should be demonstrated and described by the pupils, and their relative situation pointed out in the living as well as the dead subject. Descriptions of parts should also be required to be given from memory, and drawings of them exhibited, for the best of which prizes might be instituted.

I am aware, that many excellent anatomists are of opinion that pupils ought, at their outset, to take the scalpel in their hands, and to learn anatomy from actual dissection: but, although I acknowledge the necessity of acquiring the use of the knife as early as possible, yet I do not feel satisfied of the advantage of such a plan: on the contrary, I believe that more information will be acquired from the dissection of one body, by a pupil who has previously attended a course of descriptive anatomy, and has been besides disciplined by such examinations as I have suggested, than from the mangling of fifty bodies by a student to whom the parts, as they appear when dissected, have not been demonstrated in a regular course of lectures. The one is like a traveller who enters upon the more intimate survey of a territory over

which he has already passed under the direction of an able guide; the other is in the situation of an adventurer, wrecked upon an unknown coast, who travels into the adjoining country without having any idea of what he is likely to meet with, and, consequently, without any particular object of pursuit. I am, therefore, of opinion, that the labours of the dissecting-room should be suspended until the second division of studies be commenced. The student should, nevertheless, be encouraged to dissect the lower animals at home; and in the examinations, the attention of the professor should be directed to ascertain how far his pupil is able to describe or point out parts corresponding to those in the human body, on the dissected bodies of the lower animals. In the lectures on Descriptive Anatomy, indeed, every care should be taken to illustrate the human by comparative anatomy. I have witnessed the excellent results of this method of teaching anatomy in more than one instance; and certainly no other method is so well calculated to arrest the attention of the student, and to impress the instructions delivered by the lecturer so indelibly upon his memory. By encouraging also in the pupils the private study of comparative anatomy, facility in the use of the knife is acquired; the spirit of investigation is aroused; and as the objects themselves are smaller, and, to one commencing

the study of anatomy, less disgusting than the human corpse; and as the dissections may be conducted in the chamber of the student, hours which would probably be dissipated in idle and vicious amusements will be usefully and pleasantly occupied. Such exercises in comparative anatomy, give the pupil besides a greater zest for the study of Natural History, and fix his attention on facts and observations which would otherwise make but a feeble or transient impression upon his mind. Nor is the ultimate benefit of this branch of study to be overlooked; for the advantages which have been derived from a knowledge of comparative anatomy, in illustrating many obscure points of physiology in the human system, have been felt and amply acknowledged; and, were great examples requisite to prove the truth of this assertion, we have only to mention the names of Blumenbach and John Hunter.

Natural Philosophy.—In the examinations on this subject, the student should be allowed to handle the models necessary for illustrating the doctrines delivered in the lectures; and to ascertain their powers, and the application of these, more minutely and familiarly than can be explained by the professor during the lectures. The utmost latitude of inquiry, by conversation with the teacher, should, also, be encouraged; and the ingenuity of the pupils be exercised in the forma-

tion of theories, the value of which should be determined by the teacher: besides which, the pupils should also be aided in any experiments which they may wish to make, even should these merely tend to prove truths which have already been sufficiently investigated.

The examinations on Natural Philosophy should be held twice a week, at least; and essays on the application of the principles of physics, in explaining the powers of the animal frame, should be required from the medical students.

Chemistry. — This branch of science has been too long regarded rather as an accomplishment than as an object of primary importance to the medical practitioner: but no man who has attempted to study physiology without possessing a previous acquaintance with Chymistry has ever ceased to lament his neglect of that science. The practical physician is under equal obligations to Chymistry in the treatment of many diseases; and were it proper to bring forward particular proofs of the fact in this letter, it would be seen that not a step towards the improvements which have of late years distinguished the profession could have been made without it. It is true that Chymical theories of diseased action have, on the other hand, sometimes misled the practitioner; but these are not likely to occur, when men become as well instructed with respect to the laws of chymical

action as they are with the functions of the living body, and, consequently, able to discriminate how much is due to both, in the changes which are constantly operating in the animal system. Besides, as has been justly remarked by an enlightened physician, speaking of the general advancement of knowledge, "What will become of the medical practitioner unless he keep pace with the general progress? It is obvious that he must lose his place in the scale of society, and the credit and respectability of the profession must sink. The mere mechanic will be the better man, and he will look down with contempt upon the physician or the apothecary, who, being ignorant in Chymistry, must, as his reading will have informed him, be ignorant in the most essential parts of his avocation."*

Every pupil should be obliged to attend two courses of lectures on Chymistry; during the continuance of both of which, examinations should be held in the laboratory; and as Chymistry is truly an experimental science, the students of the second course should be exercised in experiments, and should assist in the actual operations of the science, under the guidance of an operator or assistant to the professor. Without such exercises in the manipulations of the laboratory, Chymistry, particularly as far as regards its con-

* Paris's Elements of Medical Chemistry, preface, p. xiii.

nexion with physiology and medicine, can never be perfectly acquired; and, although much may be done with a very small apparatus, a few flasks, tubes, and phials, yet many students have not the opportunity of employing the smallest that can be useful, should they even have the means of acquiring it.

Physiology and Phytology.—Besides the lectures on these branches of science, and examinations, the pupils should be required to write essays on such parts of both as may be fixed upon for that purpose by the professor; and should new methods of investigation suggest themselves, the means of pursuing these should be afforded to the pupil.

Moral Philosophy.—In prosecuting this branch of study, it is not necessary for the medical student to enter upon that part of it which refers to ethics; but in those lectures of which the philosophy of mind forms the subject, a strict attendance should be imperatively enforced, and the proficiency of the pupil be ascertained by examinations, as in the studies already enumerated.

Materia Medica and Pharmacy.—These practical branches of medical science cannot be properly taught without the aid of an ample collection of specimens and preparations, which should be always accessible to the student, who might be encouraged to read in the museum; and Phar-

macy being an operative art, he should be obliged to assist in the preparation of the chymical remedies. The attendance, indeed, on this class should be equivalent to an apprenticeship, and therefore the pupils ought to be taught, practically, the method of compounding extemporaneous prescriptions.

In the examinations, the student should be required not only to name and to describe the qualities and properties of the various articles placed before him, but to point out the good from the bad specimens of every drug; for, although the skill of the physician may enable him to grapple successfully with disease, and avert the threatened blow of the destroyer, yet his efforts will be of little avail if the arms which he must wield be blunted or in bad condition. He should also be exercised in the art of detecting adulterations both of the natural productions which are articles of the Materia Medica, and of the artificial compounds; and be intimately acquainted with the reciprocal action which they exert upon one another. Many excellent physicians know so little of the composition of drugs, that they occasionally expose themselves to be severely criticised by apothecaries and druggists, on account of the incompatible materials which they order to be mixed together in the same prescriptions; but this could never occur if pharmaceutical operations

were to become a necessary part in every medical education.

Pathology and the Practice of Medicine. — As Physiology teaches the knowledge of the functions which regulate the body in a sound or healthy state, so Pathology considers those in a morbid condition, and, consequently, developes the causes and symptoms of diseases. Pathology is, indeed, so intimately connected with the practice of medicine, that, without having previously studied it, an acquaintance with remedies would only mislead the practitioner; it may, however, be advantageously combined with the study of the practice, which is in truth the application of pathology; and as I have proposed that Physiology be taught in a distinct course of lectures, I have not thought it necessary to propose any course on what has been termed the Institutions of Medicine. But Pathology combined with the Practice of Medicine, undoubtedly the most important portion of medical education, and to which all the other studies have reference, cannot be properly taught without the assistance of a clinical hospital. I am ignorant whether the formation of such an establishment has been contemplated in the plan of the New University, and I cannot attempt to advise such a step to be hazarded in the first instance; but undoubtedly some measures should be adopted for obtaining those practical means of

instruction which a clinical ward alone affords, so essential in teaching this branch of medical study. Two plans might be suggested; either a small hospital should be attached to the university, for the sole purpose of clinical instruction; or terms should be entered into with some of the already existing hospitals, to set apart a ward for the use of the University, over which the medical professors of that establishment should preside, and which should be open only to its students. Both of these suggestions have their conveniences and their inconveniences. Let us take a separate view of each, and of the manner in which they should be managed, allowing that both are practicable.

Let us first suppose that an hospital could be attached to the University. What should its character be; and how could it be supplied with such patients as would be required, from time to time, to illustrate the progressive lectures on the practice of medicine? In my opinion, such an hospital should consist of four wards only; two for the reception of purely medical cases, and two for accidents and surgical cases. The surgical wards I shall notice in their proper place: of those for the reception of the cases of general disease, or medical cases, as they are usually termed, I would propose that one, which should be termed the *clinical ward*, should be of moderate dimensions, for the reception of cases of those diseases

on which the professor of the practice of medicine is at the time lecturing. Thus, if fever be the subject of his discourses, cases of the genera and species of that class of diseases only should be found in the clinical ward; and, for the same reason, specimens of each class of diseases should successively be found there, during the session; whilst the other, which should be the larger ward, should receive those cases which are still under treatment, although no longer required in the clinical ward, and those which have not been yet received into it. The treatment of the cases in the clinical ward should not be confined to one physician; but all the medical professors should be required to attend that ward, in turn, for a given period; and during that term to deliver daily a clinical lecture, immediately after the visitation of the ward. These visits should be made in the morning, as is the case in the Parisian hospitals, before any of the lectures commence; the patients being then more able to bear the intrusion and noise of the pupils, none of whom should be permitted to repeat his visit to the ward on the same day, unless he be appointed to superintend a case by the physician; which should be a part of the duty of each student who is attending a second course of the lectures on the practice of medicine: the pupil should be required, also, to write a statement of the case, and the rationale of

its treatment. The detail of the symptoms and the progress of the cases in this ward, as well as of their treatment, should be declared aloud by the visiting physician, and entered in the case-book of every student.

The principal inconvenience attending this plan would arise from the difficulty of procuring the succession of cases at the time they are required; and the prejudices which might be raised against the hospital, from an idea that the treatment of the cases was altogether experimental. The first-mentioned difficulty might be surmounted by forming an arrangement with the already established hospitals to supply the cases required in the University Hospital, from among the daily applications made to them; and the second would cease as soon as the public saw, that every case received as much attention, and was as rapidly cured, as in the other hospitals. It is scarcely necessary to remark, that in selecting cases for a clinical ward, all those of an extraordinary or an uncommon nature should be rejected. The time of a pupil would be idly dissipated in observing cases which present symptoms that perhaps have never occurred before, and which may never present themselves again: the characteristics of diseases of every-day occurrence, which distinguish them from one another, are those with which he requires to become ac-

quainted; and these, so far from being accurately ascertained, still present an extensive field for the exercise of observation and talent.

But, as I have already supposed, the building an hospital expressly for the purposes of the University may be considered impracticable; and therefore a ward must be obtained in some one of the existing hospitals. The nearer to the University such a ward can be procured the better; but, wherever it is, the same plan respecting the admission of cases, and the attendance both of the professors and the pupils, as I have suggested for the University hospital, should be adopted.

During the clinical lecture, the more advanced of the students should be called upon by the physician to give a prognostic of the probable issue of any of the cases which he may fix upon for that purpose; and to state the grounds on which their opinion is founded. In the examinations also on this branch of their studies, which should take place at least twice a week, cases should be detailed by the professor, and the students should be required to name the diseases, and to state the treatment requisite for the mitigation or the removal of the symptoms. Experience, which is the foundation of all knowledge in medicine, must rest either on the evidence of our own senses, or on the testimony of others. It is on the former that the phy-

sician chiefly relies; but the pupil who has the opportunity of seeing the instructions of a lecturer on Pathology and the Practice of Medicine illustrated by cases in a clinical ward, enjoys every advantage that both kinds of testimony can afford. It is by such a mode of teaching only that he can be guarded against those metaphysical and chimerical hypotheses which have always corrupted, and which still continue to deform every branch of medicine: and, thus instructed at the bed-side, he acquires early such habits of observation and of discrimination, as will enable him to commence the actual practice of his profession with a confidence in himself, and a satisfaction to the mind, which I do not hesitate to affirm is now rarely felt, except by practitioners of some years' standing.

There is, indeed, no other method of conveying to the student a knowledge of many facts connected with diseases and the operations of remedies than that which I have proposed. In what language, for example, can the appearances of the countenance, the variations of the voice, the circumstances connected with different states of breathing, nervous susceptibility, and degrees of strength, be described? These states of the habit must be seen to be understood, and can never be communicated, even by those who know them best.

Surgery.—If clinical wards be necessary for teaching properly the practice of medicine, they are even more essential for conveying instruction in surgery, as far as this is an operative art. The arrangements, however, in these wards, and a succession of cases similar to those in the medical wards, could not be expected. But the students should, as is the custom in all hospitals, be employed as dressers, instructed in the application of bandages, and intrusted, in due time, to perform minor operations, under the inspection of the professor of surgery. The examinations on Surgery, as on Anatomy, should be over the dead body, on which the more advanced students should be required to perform operations, and to demonstrate the various steps in each operation, and to explain the reasons for taking them, to the junior pupils. They should be examined also upon the medical management of surgical cases; for I never can assent to the proposition that surgery should be confined to a set of men who are merely operators; or that "the art would be more quickly brought to perfection by such men." The mechanical skill, resolution, and steady hand of the operator should be united with the information requisite in an able physician, to constitute a good surgeon; and whether the student be intended to practise as a physician or a sur-

geon, the same course of studies should be enforced.

Obstetrical Surgery and Medicine.—In this branch of study much information is communicated by means of a machine or lay figure; but the art of the accoucheur cannot be properly acquired unless the pupil have the opportunity of attending cases; a circumstance which could only be attained by an arrangement with some of the charitable lying-in institutions. The examinations should be conducted in the same manner as those on the Practice of Medicine.

Medical Jurisprudence.—Besides the lectures and regular examinations on this important part of medical study, the pupils should have opportunities afforded to them of trying the effects of poisons on the lower animals, and be exercised in the investigations necessary for detecting poisons in every part of the animal body. They should also be examined judicially, in supposed cases of insanity, suicide, infanticide, and murder, accustom them to deliver themselves with propriety when examined in a court of justice respecting real cases of a similar kind.

This part of medicine has lately very deservedly attracted much of the attention of the profession; and certainly nothing can be more beneficial to the interests of the public than that it should be properly taught. If the New Uni-

versity look for a model for instruction in any of the branches of learning to be pursued within its walls in existing establishments, many on this subject worthy of imitation will be found both in France and Germany.

Nothing requires to be said, in this place, on the subject of MEDICAL ETHICS, which does not admit of examinations, and which can be taught fully in lectures.

Such is the plan of medical education which I presume to offer for your consideration, as the council of the University of London. I have purposely stated my ideas as briefly as possible; knowing, that in writing to men of high attainments and sound judgments, prolix details are unnecessary, and would not be read. I have not the vanity to suppose that my plan is either unexceptionable, or likely to be wholly adopted; but I am sanguine enough to hope that it may be the means of directing your attention to examine more closely the subject of medical education than might otherwise have been the case. It may induce you to solicit the opinions of men high in the profession on the subject; and, as "in the multitude of counsellors there is wisdom," so in the multitude of plans presented to you, one may be framed fully adequate for the purpose. Nothing will contribute more to place the celebrity of the New University, as a school

of medicine, on an immovable basis, than the formation of such a plan; and, with the aid of able teachers, to crowd its class-rooms with students from every quarter of the globe. The beneficial effects to the public will be incalculable, as an efficient plan of education cannot fail to advance Medical Science at least a century before its present situation.

I have not taken into consideration many minor circumstances connected with the study of medicine, and, among others, the necessity of patronising a medical society within the walls of the University of London. Nothing contributes more to excite emulation, and rouse the energies of young men, than societies constituted of their fellow-students. In these meetings their opinions are canvassed by their cotemporaries with all the minuteness of severe criticism: young men thus find their level; and, being taught to appreciate justly their own powers, the vanity of the bold and arrogant is humbled; whilst the diffidence of modest and retiring genius is encouraged to advance and assume the rank which it merits. The experience of nearly a century may be brought forward in confirmation of this opinion. In the medical society of the students of the University of Edinburgh, some of the most important doctrines which have been agitated, both in physiology and in medicine,

were brought forward: there Fordyce, Brown, Cullen, Black, Monro, Macbride, Darwin, Beddoes, and Currie, first promulgated their opinions:* and, in another profession the eloquence of some of your own body, which has riveted the attention, and commanded the admiration of the world, was first essayed in the speculative society of that university.

Before closing this letter, I cannot avoid expressing my anticipations of the general success of the University of London. Its establishment, as far as medicine is concerned, is likely to form a proud and memorable era in the history of that science; and looking forward with an eye undoubtedly too feeble to pierce the cloud which veils the events of coming years, I may, yet dare to anticipate the perfection of a profession so essential to the happiness of the human race.

I have practised my profession more than twenty-six years, during which time I have beheld with deep regret, men dignified with the title of Physician countenancing the most absurd pretended remedies; — animal magnetism,—metallic tractors,—balsams,—balms, and latterly white mustard seed; and although I cannot expect to see that happy period, when the worms of Quackery shall cease to batten on the carcass of credulity, and bold and

* The Medical Society of Edinburgh was established in 1737.

impudent pretenders to go forth, like the ancient Scythians, to kill from their chariots; yet I hope to behold that day, when physicians and practitioners of every grade, disdaining all artifice, and feeling no interest separate and distinct from the honour of the profession, shall depend for success on their real merit. "Homines ad Deos nullâ re propius accedunt quàm salutem hominibus dando."

I remain, my Lords and Gentlemen,

Your humble Servant,

A. T. THOMSON.

THE END.

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